IN THE CLAIMS:

1. (Currently Amended) A method of decoupling a drive signal from a pickoff signal to attenuate the effect of electrical cross-coupling between the drive signal and the pickoff signal, the method comprising:

providing a drive signal at a first frequency that is represented by a plurality of data values;

altering at least one of the plurality of data values of the drive signal; and

producing a pickoff signal at a second frequency different from the first frequency of the drive signal;

whereby the pickoff signal is distinguished from any cross-coupled drive signal.

2. (Currently Amended) The method as defined in claim 1, further comprising:

providing a ~~second~~ secondary drive signal that is derived from the drive signal;

applying a first polarity randomization to the drive signal; and

applying a second polarity randomization to the secondary drive signal.

3. (Currently Amended) The method as defined in claim ~~1,~~ 2, wherein:

the first polarity randomization is substantially identical to the second polarity randomization; and

the first polarity randomization is applied at substantially the same time as the second polarity randomization.

4. (Original) The method as defined in claim 1, wherein:

the drive signal is a half-frequency sinusoidal signal and the plurality of data values are analog data values or digital data values; and

the altering at least one of the plurality of data values includes inverting the at least one of the plurality of data values.

5. (Original) The method as defined in claim 1, wherein the first frequency is about $\frac{1}{2}\omega$ and the second frequency is about ω.

6. (Original) The method as defined in claim 1, wherein the altering at least one of the plurality of data values includes randomly or pseudo-randomly inverting at least one of the plurality of data values.

7. (Original) The method as defined in claim 1, wherein the altering at least one of the plurality of data values includes randomly or pseudo-randomly switching from a positive state to a negative state or from a negative state to a positive state at least one of the plurality of data values.

8. (Original) The method as defined in claim 1, wherein the altering at least one of the plurality of data values occurs at approximately a zero crossing of the drive signal.

9. (Original) The method as defined in claim 1, wherein the altering at least one of the plurality of data values occurs for at least approximately a half-cycle of the drive signal.

10. (Original) The method as defined in claim 1, wherein the altering at least one of the plurality of data values occurs for at least approximately an integer number of half cycles of the drive signal.

11. (Original) A method of distinguishing an analog drive signal from a pickoff signal for attenuating the effect of electrical cross-coupling between the analog drive signal and the pickoff signal, the method comprising:

receiving a periodic digital signal at a first frequency in the form of a stream of digital data values;

randomly inverting at least one of the digital data values;

converting the stream of digital data values to a stream of analog data values to form an analog drive signal;

driving a sensor, physically coupled to a resonant member configured to oscillate at a second frequency, using the analog drive signal; and

sensing changes in the movement of the resonant member detected by the sensor for producing a pickoff signal.

12. (Original) The method as defined in claim 11, wherein the randomly inverting at least one of the digital data values occurs at approximately a zero crossing of the periodic digital signal.

13. (Original) The method as defined in claim 11, wherein the randomly inverting at least one of the digital data values occurs for at least approximately a half-cycle of the periodic digital signal.

14. (Original) The method as defined in claim 11, wherein the randomly inverting at least one of the digital data values occurs for at least approximately an integer number of half cycles of the periodic digital signal.

15. (Original) The method as defined in claim 11, wherein the randomly inverting at least one of the digital data values includes randomly or pseudo-randomly switching at least one of the digital data values from a positive number to a negative number or from a negative number to a positive number.

16. (Original) A method of distinguishing a drive signal from a pickoff signal for attenuating the effect of electrical cross-coupling between the drive signal and the pickoff signal, the method comprising:

receiving an input signal at a first frequency in the form of a plurality of data values;

randomly changing the polarity of at least one of the plurality of data values of the input signal to form a sensor drive signal;

driving a sensor, physically coupled to a resonant member, using the sensor drive signal; and

detecting movements of the resonant member by the sensor for producing a pickoff signal.

17. (Original) The method as defined in claim 16, further comprising receiving a secondary input signal in the form of a plurality of data values.

18. (Original) The method as defined in claim 16, further comprising configuring the resonant member to oscillate at a second frequency.

19. (Original) The method as defined in claim 16, wherein the resonant member is selected from a group consisting of a micro-electromechanical system and a gyroscope.

20. (Original) The method as defined in claim 16, wherein the randomly changing the polarity of at least one of the plurality of data values includes randomly changing the polarity of all the data values within a defined half-cycle of the input signal.